

*Sub D2*  
*C2*  
~~17. (Amended) An isolated lipid containing arachidonic acid wherein the arachidonic acid content in the total fatty acids in the lipid is 50% by weight or more, said lipid being obtained by culturing a microorganism [according to any one of claims 13 to 16] in which  $\omega$ 3 desaturase activity has been decreased or is lacking, wherein said lipid is obtainable by extracting microbial cells with an organic solvent, and further wherein said microorganism is obtained by the mutagenesis of a microorganism capable of producing arachidonic acid and belonging to the genus *Mortierella*, the genus *Conidiobolus*, the genus *Pythium*, the genus *Phytophthora*, the genus *Penicillium*, the genus *Cladosporium*, the genus *Mucor*, the genus *Fusarium*, the genus *Aspergillus*, the genus *Rhodotorula*, the genus *Entomophthora*, the genus *Echinosporangium* or the genus *Saprolegnia*.~~

~~18. (Amended) The lipid containing arachidonic acid according to claim 17, wherein the percentage of eicosapentaenoic acid to the total fatty acids in the lipid is 0.5% by weight or less.~~

Please add new claims 27-37 as follows:

*D3*  
*Sub D3*  
~~27. (New) An isolated arachidonic acid-containing microbial lipid, wherein the arachidonic acid content per the total fatty acid in the lipid is 50% by weight or more, and wherein the lipid is obtainable by culturing a microorganism in which  $\omega$ 3 desaturase activity has been decreased or is lacking at a temperature lower than the optimum growth temperature from the start of culturing or after culturing at the optimum growth temperature, said microorganism being obtained by mutagenesis of a microorganism~~

Sub 13  
capable of producing arachidonic acid and belonging to the genus *Mortierella*, the genus *Conidiobolus*, the genus *Pythium*, the genus *Phytophthora*, the genus *Penicillium*, the genus *Cladosporium*, the genus *Mucor*, the genus *Fusarium*, the genus *Aspergillus*, the genus *Thodotorula*, the genus *Entomophthora*, the genus *Echinosporangium* or the genus *Saprolegnia*; and then

recovering said arachidonic acid-containing microbial lipid from the culture.

C3  
28. (New) The lipid according to claim 27, wherein said mutant strain is cultured in a medium containing hydrocarbons, fatty acids, fatty acid esters, fatty acid salts, or lipids containing them as components; or adding to the culture in which said mutant strain is being cultured hydrocarbons, fatty acids, fatty acid esters, fatty acid salts, or lipids containing them as components, and then further culturing.

29. (New) The lipid according to claim 27, wherein the microorganism in which  $\omega$ 3 desaturase activity has been decreased or is lacking is cultured at a temperature lower than 20° from the start of culturing or after culturing at 20 to 40°C, said microorganism being obtained by the mutagenesis of a microorganism belonging to the subgenus *Mortierella*.

30. (New) The lipid according to claim 11, wherein the lipid is produced by a microorganism belonging to the genus *Mortierella*.

31. (New) The lipid according to claim 30, wherein the microorganism belonging to the genus *Mortierella* is *Mortierella alpina*.

32. (New) The lipid according to claim 17, wherein the lipid is produced by a microorganism belonging to the genus *Mortierella*.

33. (New) The lipid according to claim 32, wherein the microorganism belonging to the genus *Mortierella* is *Mortierella alpina*.

C3  
Sub D  
34. (New) The lipid according to claim 27, wherein the microorganism belongs to the subgenus *Mortierella*.

35. (New) The lipid according to claim 34, wherein the microorganism belonging to the subgenus *Mortierella* is *Mortierella alpina*.

36. (New) The lipid according to claim 35, wherein said *Mortierella alpina* is *Mortierella alpina* FERM BP-6794.

37. (New) The lipid containing arachidonic acid according to claim 33, wherein said *Mortierella alpina* is *Mortierella alpina* FERM BP-6794.

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